Disaster plan for water utility customers

Water is essential for survival. The ground trembling and shaking caused by earthquakes can crack or break the lines that bring fresh water to your house. Trees that are uprooted during severe storms can also pull mains right out of the ground! Stocking water reserves and learning how to purify contaminated water should be among your top priorities in preparing for a disaster. At the very minimum, you should store a 72 hour emergency supply of water for each member of your family. Emergency officials estimate that you should plan on being self sufficient for the first 72 hours following a major disaster. It is highly recommended that you store at least a two week supply of water for each member of your family. Since everyone's needs differ depending on age, physical condition, activity, diet and climate, the amount of water you will need to store may vary from official recommendations. A normally active individual needs to drink at least two quarts of water each day. Hot weather can double that amount. Children, nursing mothers and those ill of health will require more. You will also need additional water for food preparation and hygiene purposes. Store water in thoroughly washed plastic, fiberglass or enamel-lined metal containers. Don't use containers that can break, such as glass bottles. Never use a container that has held toxic substances. Sound plastic containers, such as soft drink bottles, are best. You can also purchase food-grade plastic buckets or drums. **Do not use plastic milk jugs**! The plastic is brittle and the lids come off easily. There is also the danger of not completely removing the milk residue which will become a breeding ground for bacteria.

- Containers for water should be rinsed with a diluted bleach solution (one part bleach to ten parts water) before use. Previously used bottles or other containers may be contaminated with microbes or chemicals. Do not rely on untested devices for decontaminating water.
- If your water is treated commercially the water utility, you do not need to treat water before storing it. Additional treatments of treated public water will not increase storage life.
- If you have a well or public water that has not been treated, follow the treatment instructions provided by your public health service or water provider.
- If you suspect that your well may be contaminated, contact your local or state health department or agriculture extension agent for specific advice.
- Seal your water containers tightly, label them and store them in a cool, dark place.

- Calendar a date six months from now to refresh your water supply. Drain old water into the garden, clean out your container(s) and fill with fresh water.

[Hint: If you use two-liter soda pop bottles, you can store these under beds, in the corners of closets, behind your sofa....think about this activity as a priority rather than an inconvenience and you'll find many places where you can store your emergency water.]

As a general rule
store a total of one to three gallons of water
per person, per day.

Emergency Water Sources

If a disaster catches you without a stored supply of clean water, you can use water in your hot-water tank, in your plumbing and in ice cubes. As a last resort, you can use water in the reservoir tank of your toilet (not the bowl), but purify it first. Swimming pools are large resources for water. But contain toxic chemicals that are not fully removed by many purifiers. Use swimming pools and water beds as sources of water for sanitation rather than for drinking purposes. To use the water in your pipes, let air into the plumbing by turning on the highest faucet in your house and draining the water from the lowest one. To use the water in your hot water tank, be sure the electricity or gas is off, and open the drain at the bottom of the tank. Start the water flowing by turning off the water intake valve and turning on a hot water faucet. Do not turn on the gas or electricity when the tank is empty.

As we stated before, should an earthquake or tornado strike this area, there is a good chance that the mains carrying drinking water to your homes may be damaged. Water quickly becomes a precious resource following many disasters. It is vital that all household members learn how to shut off the water at the main house valve.

- Cracked lines may pollute the water supply to your house. It is wise to shut off your water until you hear from authorities that it is safe for drinking.
- The effects of gravity may drain the water in your hot water heater and toilet tanks unless you trap it in your house by shutting off the main house valve (not the setter valve in the plastic box by the curb—this valve is extremely difficult to turn and requires a special tool).

Preparing to Shut Off Water

- Locate the shut-off valve for the water line that enters your house. It may look like the sample pictured here.
- Make sure this valve can be completely shut off. Your valve may be rusted open, or it may only partially close. Replace it if necessary.
- Label this valve with a tag for easy identification, and make sure all household members know where it is located.

If you need to seek water outside your home, you can use these sources. But purify the water before drinking it.

- Rainwater
- Streams, rivers and other moving bodies of water
- Ponds and lakes
- Natural springs

Avoid water with floating material, an odor or dark color.

Emergency Water Purification

Boiling Water Method

Boiling is the safest method of purifying water. Bring water to a rolling boil for 10 minutes, keeping in mind that some water will evaporate. Let the water cool before drinking.

Boiled water will taste better if you put oxygen back into it by pouring it back and forth between two containers. This will also improve the taste of stored water.

Chlorination Method

Chlorination uses unscented liquid chlorine bleach to kill microorganisms. Follow these recommendations:

- For one quart water use 2 drops of unscented liquid chlorine bleach. If water is cloudy, use 4 drops.
- For one gallon water use 8 drops of unscented liquid chlorine bleach. If water is cloudy, use 16 drops.
- For 5 gallons water, use 1/2 teaspoon of unscented liquid chlorine bleach. If water is cloudy, use 1 teaspoon.
- For 15 gallons water, use 1 1/4 teaspoons of unscented liquid chlorine bleach. If water is cloudy, use 2 1/2 teaspoons.
- For 55 gallons water, use 4 1/2 teaspoons unscented liquid chlorine bleach. If water is cloudy, use 3 Tablespoons bleach.

[Note: There are approximately 100 drops in a teaspoon}

Add unscented liquid chlorine bleach to the water, stir and let stand for 30 minutes. If the water does not taste and smell of chorine at that point, add another dose and let stand another 15 minutes.

If you do not have a dropper, use a spoon and a square ended strip of paper or thin cloth about 1/4 inch by 2 inches. Put the strip in the spoon with an end hanging down about 1/2 inch below the scoop of the spoon. Place unscented liquid chlorine bleach in the spoon and carefully tip it. Drops the size of those from a medicine dropper will drip off the end of the strip.

Purification Tablets Method

In addition to having a bad odor or taste, contaminated water can contain microorganisms that cause diseases such as dysentery, cholera, typhoid and hepatitis. You should therefore purify all water of uncertain purity before using it for drinking, food preparation or hygiene.

There are many ways to purify water at home. None are perfect. Often the best solution is

a combination of methods. Before purifying, let any suspended particles settle to the bottom, or strain them through layers of paper towel or clean cloth.

Distillation Method

Distillation involves boiling water and then collecting the vapor that condenses back to water. The condensed vapor will not include salt and other impurities. To distill, fill a pot halfway with water. Tie a cup to the handle on the pot's lid so that the cup will hang right side up when the lid is upside down (make sure the cup is not dangling into the water) and boil the water for 20 minutes. The water that drips from the lid into the cup is distilled.

Links for emergency water treatment

Ceramic drip filter from two 5-gallon buckets
http://shop.monolithic.com/products/just-water-ceramic-drip-filter

Slow sand filters built from household materials
http://www.shared-source-initiative.com/biosand_filter/complete_biosand.html

http://www.howtopedia.org/en/How_to_Filter_Water_with_a_Sand_Filter%3F

http://www.cms-uk.org/GetInvolved/TheConcept/Construction/tabid/311/language/en-US/Default.aspx

Rain Barrel construction
http://www.howtopedia.org/en/How_to_Filter_Water_with_a_Sand_Filter%3F

http://www.ehow.com/how_4608101_rain-barrel.html

Mixed Oxidant purification (MI-OX)
http://www.thereadystore.com/emergency-water/emergency-water-purifiers/msr-miox-water-purifier

Ultra-Violet disinfection
http://www.steripen.com/steripen_products.html

In case there is an emergency; for updates and information, tune in to your local television and radio stations.